Z. Säugetierkunde **60** (1995) 124–127

Taxonomic status of *Delomys dorsalis collinus* Thomas, 1917 (Rodentia, Cricetidae) and description of a new karyotype

By C. R. Bonvicino and Lena Geise

Departamento de Genética, Instituto de Biologia,
Universidade Federal do Rio de Janeiro,
Rio de Janeiro, Brazil.

Receipt of Ms. 06. 04. 1994
Acceptance of Ms. 21. 09. 1994

The genus *Delomys* has two known extant species, *Delomys sublineatus* (Thomas, 1903) and *Delomys dorsalis* (Hensel, 1872), sympatrically distributed in some localities of highland habitats, along the southeastern coast of Brazil, from Rio Grande do Sul to Espírito Santo States (Zanchin et al. 1992). Thomas (1917), on the basis of molar size and upper molar row length, suggested that *D. dorsalis* had two morphotypes, *D. d. dorsalis* and *D. d collinus*, whereas Moojen (1952) considered the latter form a valid species (*Delomys collinus*). Voss (1993) recognized only two monotypic species (*D. sublineatus* and *D. dorsalis*), although be proposed that further studies were needed for analysing populations captured in localities of São Paulo State.

Previous data in the literature mentioned only two different karyotypes, *D. sublineatus* with 2N = 72, FN = 90, and *D. dorsalis* with 2N = 82, FN = 80 (Zanchin et al. 1992), while the karyotype described by Yonenaga (1975), referring to *D. collinus*, actually corresponds to *D. dorsalis*.

In this study, we present new karyological data on *Delomys* specimens collected in the states of Rio de Janeiro and Minas Gerais.

We collected 65 specimens of *Delomys* in Parque Nacional de Caparaó (20°19′ S 41°48′ W), Minas Gerais and Espírito Santo States, and five from Brejo da Lapa, Itatiaia (22°23′ S 44°43′ W), and Rio de Janeiro State.

Figure 1 shows part of the distribution of *D. dorsalis* and *D. sublineatus*, and our collecting localities. The plotted localities are: 1. (Parque Nacional do Caparaó, 1,800–2,400 m), and 2. (Itatiaia, 1,750 m) from this study; 3. (Engenheiro Reeve, Espírito Santo State, 20°46′ S, 41°285′ W, 400–600 m), 4. (Santa Tereza, Espírito Santo State, 19°55′ S 40°36′ W, 900 m), 5. (Conceição do Mato Dentro, Minas Gerais State, 19°01′ S 43°25′ W, 771 m), 6. (Itatiaia, Rio de Janeiro State, 22°23′ S 44°38′ W, 1,385 m), 7. (Teresópolis, Rio de Janeiro State, 22°26′ S 42°59′ W, ca. 800 m), 8. (Alto da Serra, São Paulo State, 23°47′ S 46°19′ W, ca. 800 m), 9. (Boracéia, 22°38′ S 45°52′ W, 800–900 m and Casa Grande, 23°37′ S 45°57′ W, 800 m, São Paulo State), 10. (Piquete, São Paulo State, 22°36′ S 45°11′ W, 600–900 m) according to Voss (1993); and locality 11. (Monte Verde, Espírito Santo State, 19°53′ S 41°57′ W) according to Zanquin et al. (1992).

One male from Caparaó (Museu Nacional 31 948) and all five specimes from Itatiaia (males: MN 33 698, 33 700; females: 33 699, 33 701 and 33 702) were karyologically analysed. Chromosome preparations were obtained from bone marrow as described by Ford and Hamerton (1956), and G-banding was performed using a modified procedure of Seabright (1971). Skins and skulls of the specimes collected in Itatiaia were deposited in the Museu Nacional (MN), Rio de Janeiro and those collected in Parque Nacional de Caparaó in the Field Museum of Natural History (FM), Chicago.

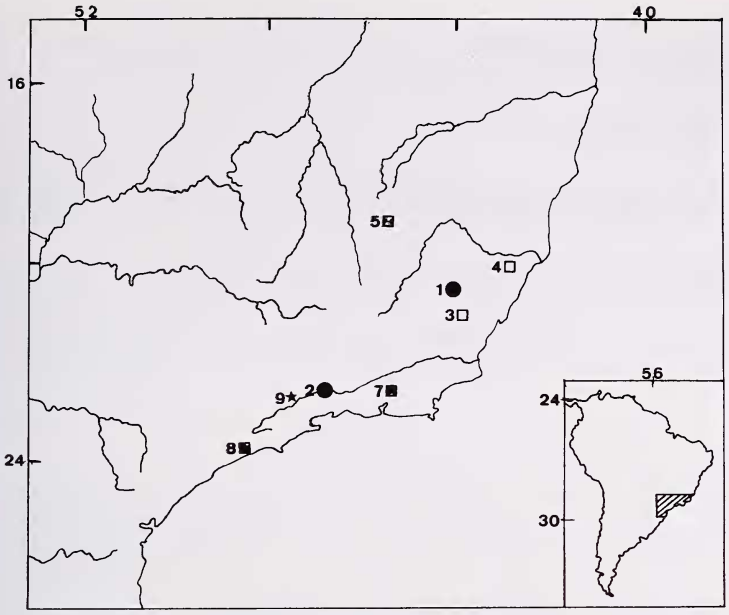

Fig. 1. Localities of occurrence of ✶ *Delomys sublineatus*, □ *D. dorsalis*, and ● *D. collinus*. See text for names of locality. The map scale is 1 : 5,000,000.

Chromosome analyses showed 2N = 82, FN = 86 in all studied specimens. The autosomal complement is composed of 3 pairs of biarmed chromosomes and 27 pairs of acrocentrics. Each of these groups is ordered in decreasing size in figure 2. The X chromosome is large-sized submetacentric, and the Y chromosome is a small metacentric. G-banding (Fig. 3) allows the unequivocal identification of each homologue.

Although previous data on *D. dorsalis* (Zanchin et al. 1992) show the same diploid number as specimens herewith reported, karyological differences are evident. This is due to the presense of three biarmed pairs in our specimens, while the *D. dorsalis* karyotype is exclusively composed of acrocentric chromosomes. Consequently, *D. dorsalis* has FN = 80 against FN = 86 of our specimens; this difference presumably being due to three pericentric inversions.

Our biogeographic data show that the studied populations have a disjunct distribution. Ecological data show that our specimens are endemic to vegetations that occur only at high altitudes, captured at or above 1,750 m. In Parque Nacional do Caparaó, with sampling areas as low as 1,000 m and as high as 2,700 m, we captured specimens only at altitudes equal or higher than 1,800 m, corresponding to areas of mountain scrub and mountain forest vegetation. In Itatiaia, specimens were collected at 1,750 m, also in mountain forests.

Both localities where our specimens were collected are about 400 km apart, being the two highest sites in southeast Brazil. Between these localities Voss (1993) and Zanchin et al. (1992) observed *D. dorsalis* and *D. sublineatus*.

Karyological, biogeographical, and ecological data show that our specimens, *D. dorsalis*, and *D. sublineatus* comprise three different taxa. Morphological analysis also corroborates these data, showing three different groups. Our specimens are endemic to mountain forest and mountain scrub, a reason why they are part of noncontinuous and vicariant populations. Karyological data show a discontinuous variation between them, without heterozygotes for the chromosome rearrangements reported here and for the karyotypes

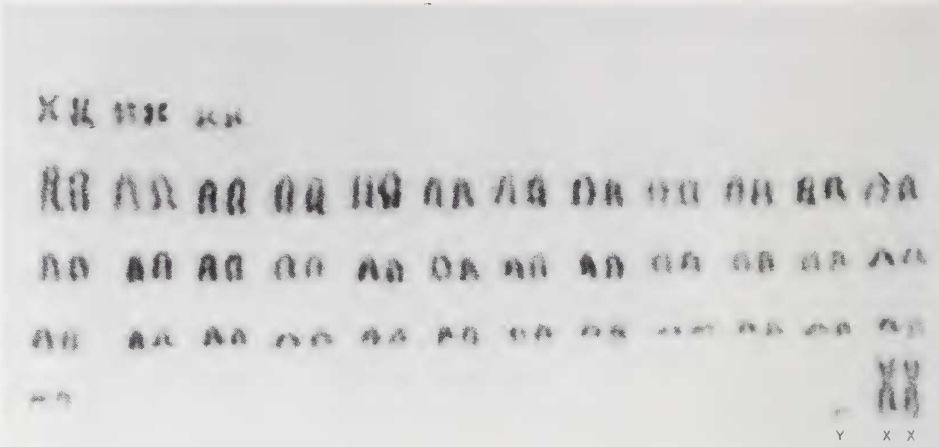

Fig. 2. Karyotype of *Delomys collinus* (conventional staining).

Fig. 3. G-band karyotype of *Delomys collinus*. The illustrations lacks one homologue chromosome (–).

reported for *D. dorsalis* in the literature (Zanquin et al. 1992; Yonenaga 1975). It is therefore likely that these groups are reproductively isolated from one another. Our results suggest that Itatiaia and Caparaó populations belong to the same taxon, which is karyologicaly different from *D. dorsalis* and *D. sublineatus*. The name that can be considered for this specimens is *D. collinus*, since we collected our Itatiaia specimens near the type locality of *D. dorsalis collinus* (Thomas, 1917).

Acknowledgements

Were are very grateful to Dr. L. F. de Oliveira and Valeria Penna Firme for collecting specimens in Itatiaia. This work was supported by CNPq, FAPERJ, WWF, INCA, and the Barbara Brown Foundation.

References

Ford, C. E.; Hamerton, J. L. (1956): A colchicine hypotonic citrate squash sequence for mammalian chromosome. Stain Tech. **31**, 247–251.

Hensel, R. (1872): Beiträge zur Kenntnis der Säugethiere Süd-Brasiliens. Abh. Preuss. Akad. Wiss. (Berlin) **1872**, 1–130.

Moojen, J. (1952): Os roedores do Brasil. Instituto Nacional do Livro, Rio de Janeiro. 1–214.

Seabright, M. (1971): A rapid banding technique for human chromosomes. Lancet **2**, 971–972.

Thomas, G. H. H. (1903): Notes on Neotropical Mammals of the genera *Felis*, *Hapale*, *Oryzomys*, *Akodon* and *Ctenomys*, with descriptions of new species. Ann. Mag. Nat. Hist. **7**, 234–243.

Thomas, G. H. H. (1917): On the arrangement of the South American rats allied to *Oryzomys* and *Rhipidomys*. Ann. Mag. Nat. Hist. **8**, 192–198.

Voss, R. S. (1993): A revision of the Brasilian muroid rodent genus *Delomys* with remarks on "thomasomyine" characteres. Am. Mus. Novitates **3073**, 44.

Yonenaga, Y. (1975): Karyotypes and chromosome polymorphism in Brazilian rodents. Caryologia **28**, 269–286.

Zanquin, N. I. T; Sbalqueiro, I. J.; Langguth, A.; Bossle, R. C.; Castro, E. C.; Oliveira, L. F. B.; Mattevi, M. S. (1992): Karyotype and species diversity of the genus *Delomys* (Rodentia, Cricetidae) in Brazil. Acta Theriol. **37**, 163–169.

Authors' addresses: Cibele Rodrigues Bonvicino, Rua Pompeu Loureiro, 66, apto 403, Copacabana, Rio de Janeiro, CEP.: 22051-000, Rio de Janeiro, Brazil and Lena Geise, Rua Visconde de Santa Cruz, 285, apto. 1004, Engenho Novo, Rio de Janeiro, CEP.: 20950-340, Rio de Janeiro, Brazil.